UPPER JEFFERSON RIVER TMDL PLANNING AREA: 2009 -2010 SAMPLING AND ANALYSIS PLAN DISCHARGE, SUSPENDED SEDIMENT AND TURBIDITY

Sampling and Analysis Plan - Addendum

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This document constitutes an addendum to the Sampling and Analysis Plan (SAP) for the completion of discharge, suspended sediment concentration (SSC) and turbidity for the Upper Jefferson TMDL Planning Areas (TPA). This SAP Addendum provides sampling and analysis guidance for a portion of the Upper Jefferson River Phase II TMDL Project (MO8-TMDL-02). The original SAP (M08-TMDL-02) provides the sampling and analysis requirements that will be adhered to for this addendum. This SAP Addendum includes additional sampling at two sites for discharge, SSC, and turbidity data collection in the Beaverhead TPA in order to fully understand sediment loading to the Upper Jefferson River.

1.0 INTRODUCTION AND BACKGROUND

The Jefferson River is located in the Missouri River headwaters in Southwest Montana. The River is composed of three major tributaries: the Ruby River, Beaverhead River and the Big Hole River. The Jefferson River converges with the Gallatin and Madison River near Three Forks, MT to form the Missouri River. The TMDL planning area includes portions of Silverbow, Jefferson, and Madison counties.

The Beaverhead River begins at the outlet of the Clark Canyon Reservoir and flows northeast 79.5 miles before joining the Big Hole River to form the Jefferson River. The majority of the Beaverhead TPA is located within Beaverhead County, with a small portion in Madison County and includes the towns of Dillon and Twin Bridges. The Beaverhead River is identified for sediment impairment on Montana's 2008 impaired waters list. Assessment techniques for the river will vary from normal procedures given the size of the river and unique seasonal circumstances. The goal of the sampling project is to acquire suspended sediment data to help determine the sediment load of the Beaverhead River and its potential impact on the Jefferson River.

The addendum to this sampling plan includes collection of stream discharge, SSC, sediment size fraction, and turbidity data on the Beaverhead River, which will be used for the following:

- Verification of suspended sediment impairment conditions in the Beaverhead River.
- Assist in quantification of suspended sediment conditions in the Beaverhead River.

Upstream impacts to the Jefferson River include reservoirs and associated irrigation activities in the Beaverhead as a major influencing factor on sediment loading and turbidity. The original SAP covered the tributaries entering the Jefferson River in the Upper Jefferson TPA. However, additional data collection on the Beaverhead is needed in order to quantify its sediment load and understand its respective contribution to sediment loading to the Jefferson River. Data collection at one existing site (Beaverhead near Twin Bridges) and one new site (Beaverhead at Twin Bridges) has been added to the original SAP to evaluate the Beaverhead River for sediment impairment (**Tables 1 and 2**). The data collected will help identify the sediment load for both the Beaverhead and Jefferson Rivers.

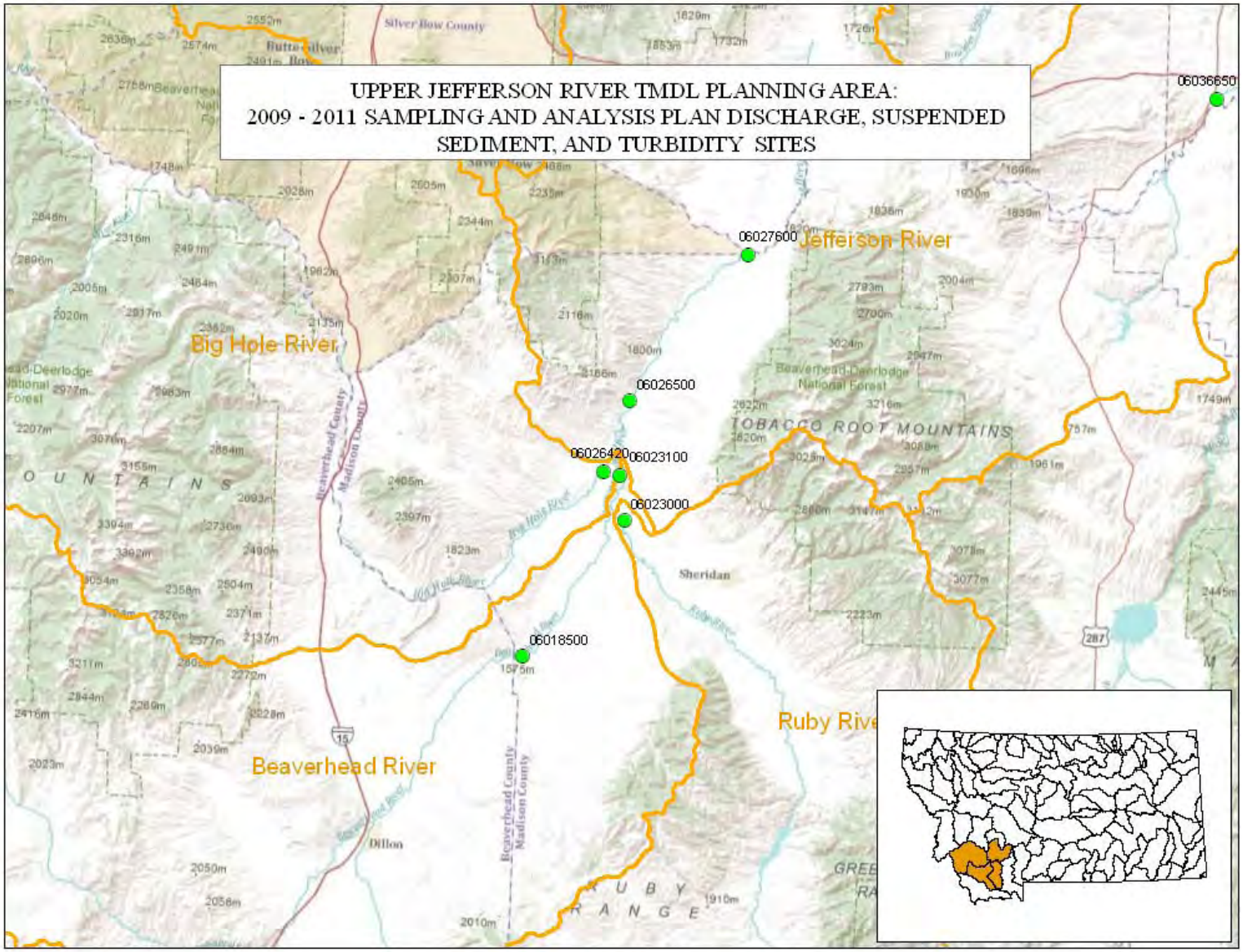
UPPER JEFFERSON RIVER TMDL PLANNING AREA:
2009 - 2011 SAMPLING AND ANALYSIS PLAN DISCHARGE, SUSPENDED SEDIMENT, AND TURBIDITY SITES
06036650
06027600
Jefferson River
Big Hole River
06026500
06026420
06023100
06023000
TOBACCO ROOT MOUNTAINS
Sheridan
06018500
Ruby River
Beaverhead River
Dillon
Beaverhead-Deerlodge National Forest
Silver Bow County
Beaverhead County
Madison County

Table 1. Original sampling sites, timeframes and constituents

Site Name	USGS Site ID	Monthly SSC and Sand Fraction	SSC and Sand Fraction Monitoring Timeframe	Continuous Turbidity	Turbidity Monitoring Timeframe	Discharge	Discharge Monitoring Timeframes
Ruby River near Twin Bridges	06023000	X	***At All Sites***: 2009: May – Oct. 2010: April – Oct. ***At Sites 06026500 and 06036650:*** Two winter low flow samples between Nov. 2009 and March 2010			X	2009: May – Oct. 2010: April – Oct.
Beaverhead River near Twin Bridges	06018500	X				X	2009: May – Oct. 2010: April – Oct.
Big Hole River below Hamilton Ditch, near Twin Bridges	06026420	X				X	2009: May – Oct. 2010: April – Oct.
Jefferson River near Twin Bridges	06026500	X		X	2009: June 1 – Oct. 31 2010: April 1 – Oct. 31	X	May, 2009 – Oct. 2010
Jefferson River at Parsons Bridge, near Silver Star	06027600	X				X	2009: May – Oct. 2010: April – Oct.
Jefferson River near Three Forks	06036650	X				X	May, 2009 – Oct. 2010

X = Monitoring of constituent at the site
Blanks cells indicate no monitoring.

Table 2: Additional sampling sites, timeframes and constituents

SAP ADDENDUM								
Site Name	**USGS Site ID**	**Additional Monthly SSC and Sand Fraction**	**Bi-Monthly SSC and Sand Fraction**	**SSC and Sand Fraction Monitoring Timeframe**	**Continuous Turbidity**	**Turbidity Monitoring Timeframe**	**Discharge**	**Discharge Monitoring Timeframes**
Beaverhead River near Twin Bridges	6018500	X		***Both sites 6018500 and 6023100:*** **June 1, 2010 - October 31, 2010 & Two winter low flow samples December 2010 and February 2011**	X	***Both sites 6018500 and 6023100:*** **June 1, 2010 - October 31, 2010**	X	***Both sites 6018500 and 6023100:*** **Continuous discharge - June 1, 2010 - October 31, 2010 & Two instantaneous discharge measurements concurrent with winter SSC sampling**
Beaverhead River at Twin Bridges	6023100		X		X		X	

X = Monitoring of constituent at the site
Blanks cells indicate no monitoring.